



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/539,704	07/18/2005	Ari Vaisanen	60282.00258	4609

32294 7590 07/17/2007
SQUIRE, SANDERS & DEMPSEY L.L.P.
14TH FLOOR
8000 TOWERS CRESCENT
TYSONS CORNER, VA 22182

EXAMINER

MANOHARAN, MUTHUSWAMY GANAPATHY

ART UNIT	PAPER NUMBER
----------	--------------

2617

MAIL DATE	DELIVERY MODE
-----------	---------------

07/17/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.		Applicant(s)	
	10/539,704		VAISANEN ET AL.	
	Examiner		Art Unit	
	Muthuswamy G. Manoharan		2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 5/1/2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-45,48-61,64 and 65 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-45,48-61,64 and 65 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 5/2/2007 has been entered.

Response to Arguments

Applicant's arguments with respect to claims 1-45, 48-61 and 64-65 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 25-27, 29, 31, 48, 56 and 57 are rejected under 35 U.S.C. 102(a) as being anticipated by AP (applicant admitted prior art) (US 2006/0073827).

Regarding **claim 25**, AP teaches an access node for a wireless communication network comprising:

detecting device configured to detect and transmit communication information to a subscriber terminal, said communication information comprising frequency band information indicating at least one frequency band where at least one access node is capable to communicate, wherein said detecting device is further configured to incorporate the communication information in a signaling using a transmission of specific frames to said subscriber terminal ("**probe request frames which are sent by subscriber terminal**", "**probe response frames sent by an available access point to allow a subscriber terminal to scan actively if there is an access point operating on certain frequency and to show to the subscriber terminal what parameter settings this access point is using**", Paragraph [0006]).

Regarding **claim 26**, AP teaches the access node according to claim 25, wherein said wireless communication network is a WELAN, based on an IEEE 802.11 standard (Paragraph [0006]).

Regarding **claim 27**, the access node according to claim 26, wherein said at least one frequency band comprises a frequency band of 2.4 GHz and one or more frequency bands between 5 and 6 GHz (Paragraph [0006]).

Regarding **claim 29**, AP teaches all the particulars of the claim except the access node, wherein said communication information further comprises a traffic load indicator related to the at least one frequency band of an access node (Paragraph [0010]).

Regarding **claim 31**, AP further teaches the method according to claim 1, wherein said communication information comprise a frequency channel indicator for

indicating the frequency channel used by at least part of the at least one access node at the respective frequency band (Paragraph [0006]).

Claim 48 is rejected for the same reason as set forth in claim 25.

Regarding **claim 56**, AP teaches the access node wherein the signaling comprises a transmission of one or more specific frames (Paragraph [0006]).

Regarding **claim 57**, AP teaches the access node wherein the signaling comprises a probe request/probe response (Paragraph [0006]).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 28 and 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over AP (applicant admitted prior art) (US 2006/0073827) in view of Moreton et al. (hereinafter Moreton) (US 2004/0013128).

Regarding **claim 28**, AP teaches all the particulars of the claim except the said communication information further comprises a multiple band indicator related to an access node. However, Moreton teaches in an analogous art wherein said communication information further comprises a multiple band indicator related to an access node (Paragraphs [0039], [0089]; Note: critical timing information indicates that

the access node is a multiple band access node). Therefore, it would be obvious to one of ordinary skill in the art at the time of invention to have the communication information further comprises a multiple band indicator related to an access node. This modification helps to switch the mode of the subscriber terminal based on the timing information.

Regarding **claim 58**, AP teaches all the particulars of the claim except wherein the multiple band indicator indicates at least one frequency band. However, Moreton teaches in an analogous art wherein the multiple band indicator indicates at least one frequency band (Paragraphs [0039], [0089]; Note: critical timing information indicates that the access node is a multiple band access node). Therefore, it would be obvious to one of ordinary skill in the art at the time of invention to use the multiple band indicator indicates at least one frequency band in order to decide on whether to perform changeover or not.

Claims 1-3,5-9,11-15,17-21,23-24,30,32-34,37-40,42-45,49-51,53-54,59-60 and 64 are rejected under 35 U.S.C. 103(a) as being unpatentable over AP (applicant admitted prior art) (US 2006/0073827) in view of Raith et al. (hereinafter Raith) (US 6259915).

Regarding **claim 1**, AP teaches a method of deciding a communication connection changeover of a subscriber terminal, said method comprising:

detecting communication information from said at least one access node, said communication information comprising frequency band information indicating at least one frequency band where said at least one access node is capable to communicate

("probe request frames are followed by probe response frame", "access point operating on a certain frequency", Paragraph [0006]),

transmitting said communication information from said at least one access node to said subscriber terminal by signaling by transmitting specific frames ("probe response frame", Paragraphs [0006]);

processing in the subscriber terminal, transmitted communication information and using the processing result for a decision on a communication connection changeover of the subscriber terminal ("it is well known that handovers in WLAN are based on WLAN subscriber terminal's decision", Paragraph [0008]).

AP did not teach specifically determining based on the communication information a communication connection capability of at least part of the at least one access node on the basis of the frequency band information. However, Raith teaches in an analogous art, a method of determining based on the communication information a communication connection capability of at least part of the at least one access node on the basis of the frequency band information (Col. 5, lines 48-53; Col. 5, lines 56-60; **"changeover to a new frequency to continue connection"**, Col. 7, lines 41-47).

Therefore, it would be obvious to one of ordinary skill in the art at the time of invention to use the method of determining based on the communication information a communication connection capability of at least part of the at least one access node on the basis of the frequency band information. This modification improves communication capability of the system.

Regarding **claim 2**, AP further teaches the method according to claim 1, wherein transmitting comprises sending the communication information across a wireless communication network is a WLAN, based on an IEEE 802.11 standard (Paragraph [0006]).

Regarding **claim 3**, AP further teaches the method according to claim 2, wherein said at least one frequency band comprise a frequency band of 2.4 GHz and one or more frequency bands between 5 and 6 GHz (Paragraph [0006]).

Regarding **claim 5**, AP teaches all the particulars of the claim except the access node, wherein said communication information further comprises a traffic load indicator related to the at least one frequency band of an access node (Paragraph [0010]).

Regarding **claims 6, 30 and 38**, AP teaches all the particulars of the claim except said communication information further comprises a frequency band coverage indicator related to frequency bands of neighboring access nodes of the transmitting access node in the wireless communication network. However, Raith teaches in an analogous art, wherein said communication information further comprises a frequency band coverage indicator related to frequency bands of neighboring access nodes of the transmitting access node in the wireless communication network ("Cellular hyper band", "PCS hyper band"; Col. 5, lines 48-64). Therefore, it would be obvious to one of ordinary skill in the art at the time of invention to use the method, wherein said communication information further comprises a frequency band coverage indicator related to frequency bands of neighboring access nodes of the transmitting access node in the wireless

communication network. This modification helps in completing the handover process quickly.

Regarding **claim 7**, AP teaches all the particulars of the claim except the access node, wherein said communication information further comprises a traffic load indicator related to the at least one frequency band of an access node (Paragraph [0010]).

Regarding **claim 8**, AP teaches the method, wherein said processing further comprises: detecting a signal strength indicator on a predetermined frequency band; and comparing the detected signal strength indicator with a predefined threshold value, wherein the result of the comparison indicates an estimation of the connection capability of an access node on another frequency band (Paragraph [0008]).

Regarding **claim 9**, AP teaches the method, wherein the decision on a communication connection changeover is made by the subscriber terminal ("**handovers in WLAN are based on WLAN subscriber terminal's decision**", Paragraph [0008]).

Regarding **claim 11**, Raith further teaches a communication connection changeover of the wherein a result of the decision subscriber terminal is a change of the communication connection from the current access node (item 30 in Figure 1) to a specific frequency band of a neighboring access node which is common to the subscriber terminal and the neighboring access node to be associated with the subscriber terminal (Col. 7, lines 41-67; Col. 8, lines 1-11).

Regarding **claim 12**, Raith further teaches a method wherein the communication information transmitted from two or more access nodes in the wireless communication network are processed in said processing step (Col. 8, lines 26-35).

Claims 13-15,17-21 and 23-24 are rejected for the same reasons as set forth in claims 1-3,5-9 and 11-12 respectively.

Claims 32-34 are rejected for the same reasons as set forth in claims 1-3 respectively.

Claims 37,39-40,42 are rejected for the same reason as set forth in claims 5,7,8 and 11 respectively.

Claims 43-45 are rejected for the same reason as set forth in claim 12,1 and 32 respectively.

Claim 49 is rejected for the same reason as set forth in claim 1.

Regarding **claims 50,53 and 59** AP teaches the access node wherein the signaling comprises a transmission of one or more specific frames (Paragraph [0006]).

Regarding **claims 51, 54, and 60** AP teaches the access node wherein the signaling comprises a probe request/probe response (Paragraph [0006]).

Claim 64 is a combination of claims 1 and 8. therefore, claim 64 is rejected for the same reason as set forth in claims 1 and 8.

Claim 4,10,16,22,35,36,41,52,55, and 61 are rejected under 35 U.S.C. 103(a) as being unpatentable over AP (applicant admitted prior art) (US 2006/0073827) in view of Raith et al. (hereinafter Raith) (US 6259915) and Moreton et al. (hereinafter Moreton) (US 2004/0013128).

Regarding **claim 4 and 16**, AP in view of Raith teaches all the particulars of the claim except the said communication information further comprises a multiple band indicator related to an access node. However, Moreton teaches in an analogous art

wherein said communication information further comprises a multiple band indicator related to an access node (Paragraphs [0039], [0089]; Note: critical timing information indicates that the access node is a multiple band access node). Therefore, it would be obvious to one of ordinary skill in the art at the time of invention to have the communication information further comprises a multiple band indicator related to an access node. This modification helps to switch the mode of the subscriber terminal based on the timing information.

Regarding **claims 10 and 22**, AP in view of Raith teaches all the particulars of the claim except wherein a result of the decision on a communication connection changeover of the subscriber terminal comprises a change of the communication connection from the present frequency band to another frequency band which is common to the subscriber terminal and the access node associated with the subscriber terminal. However, Moreton teaches in an analogous art, wherein a result of the decision on a communication connection changeover of the subscriber terminal comprises a change of the communication connection from the present frequency band to another frequency band which is common to the subscriber terminal, and the access node associated with the subscriber terminal (Paragraph [103-104]). Therefore, it would be obvious to one of ordinary skill in the art at the time of invention to use the method wherein a result of the decision on a communication connection changeover of the subscriber terminal comprises a change of the communication connection from the present frequency band to another frequency band which is common to the subscriber

terminal and the access node associated with the subscriber terminal method in order to have a successful changeover.

Regarding **claim 35**, AP in view of Raith teaches all the particulars of the claim except the said receiving device is further configured to extract the communication information from a beacon packet broadcasted from the access node. However, Moreton teaches in an analogous art a receiving device is further configured to extract the communication information from a beacon packet broadcasted from the access node (Paragraph [0089], lines 1-2). Therefore, it would be obvious to one of ordinary skill in the art at the time of invention to use the receiving device is further configured to extract the communication information from a beacon packet broadcasted from the access node in order of perform changeover for better performance.

Claims 36 and 41 are rejected for the same reason as set forth in claims 4 and 10 respectively.

Regarding **claim 52,55 and 61**, AP teaches all the particulars of the claim except wherein the multiple band indicator indicates at least one frequency band. However, Moreton teaches in an analogous art wherein the multiple band indicator indicates at least one frequency band (Paragraphs [0039], [0089]; Note: critical timing information indicates that the access node is a multiple band access node). Therefore, it would be obvious to one of ordinary skill in the art at the time of invention to use the multiple band indicator indicates at least one frequency band in order to decide on whether to perform changeover or not.

Claim 65 is rejected under 35 U.S.C. 103(a) as being unpatentable over AP (applicant admitted prior art) (US 2006/0073827) in view of Raith et al. (hereinafter Raith) (US 6259915) and Dehner et al. (hereinafter Dehner) (US 2003/0035464).

Regarding **claim 65**, AP teaches a method of deciding a communication connection changeover of a subscriber terminal, said method comprising:

detecting communication information from said at least one access node, said communication information comprising frequency band information indicating at least one frequency band where said at least one access node is capable to communicate ("probe request frames are followed by probe response frame", "access point operating on a certain frequency", Paragraph [0006]),

transmitting said communication information from said at least one access node to said subscriber terminal by signaling by transmitting specific frames ("probe response frame", Paragraphs [0006]);

processing in the subscriber terminal, transmitted communication information and using the processing result for a decision on a communication connection changeover of the subscriber terminal ("it is well known that handovers in WLAN are based on WLAN subscriber terminal's decision", Paragraph [0008]).

AP did not teach specifically determining based on the communication information a communication connection capability of at least part of the at least one access node on the basis of the frequency band information. However, Raith teaches in an analogous art, a method of determining based on the communication information a

communication connection capability of at least part of the at least one access node on the basis of the frequency band information (Col. 5, lines 48-53; Col. 5, lines 56-60; **"changeover to a new frequency to continue connection"**, Col. 7, lines 41-47).

Therefore, it would be obvious to one of ordinary skill in the art at the time of invention to use the method of determining based on the communication information a communication connection capability of at least part of the at least one access node on the basis of the frequency band information. This modification improves communication capability of the system.


The combination of AP and Raith did not teach specifically a frequency band coverage indicator related to continuation or discontinuation of availability of frequency bands in neighboring access nodes of the transmitting access node in the wireless communication network. However, Dehner teaches in an analogous art a method wherein a frequency band coverage indicator related to continuation or discontinuation of availability of frequency bands in neighboring access nodes of the transmitting access node in the wireless communication network (Abstract). Therefore, it would be obvious to one of ordinary skill in the art at the time of invention to use the method wherein the frequency band coverage indicator related to continuation or discontinuation of availability of frequency bands in neighboring access nodes of the transmitting access node in the wireless communication network in order to provide handoff and thus roaming service to the mobile devices.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Muthuswamy G. Manoharan whose telephone number is 571-272-5515. The examiner can normally be reached on 7:00AM-2:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eng George can be reached on 571-272-7495. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


GEORGE ENG
SUPERVISORY PATENT EXAMINER